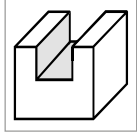
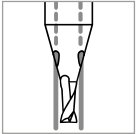
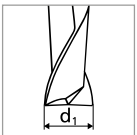
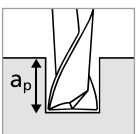
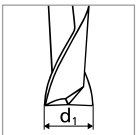
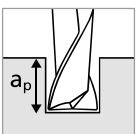







# CrazyMill Cool Square/Corner radius-Type A - 1.5xd

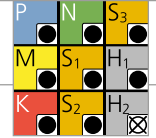
## MILLING WITH INTEGRATED COOLING | CUTTING DATA OVERVIEW

	Materials group	Material	Mat. no.	DIN	AISI/ASTM/UNS	Ød1	
						0.3-0.4 mm   .012"-.016"	
						$v_c$	$f_z$
<b>Conventional slot milling</b>  $a_p = 1 \times d_1$	<b>P</b>	Unalloyed carbon steel Rm < 800 N/mm <sup>2</sup>	1.0301	C10	AISI 1010	60   197	0.004 - 0.006 .00016 - .00024
			1.0401	C15	AISI 1015		
			1.1191	C45/CK45	AISI 1045		
			1.0044	S275JR	AISI 1020		
			1.0715	11SMn30	AISI 1215		
		Low alloyed steel Rm > 900 N/mm <sup>2</sup>	1.5752	15NiCr13	ASTM 3415 / AISI 3310	60   197	0.003 - 0.005 .00012 - .00020
			1.7131	16MnCr5	AISI 5115		
			1.3505	100Cr6	AISI 52100		
			1.7225	42CrMo4	AISI 4140		
			1.2842	90MnCrV8	AISI O2		
		High alloyed tool steel Rm < 1200 N/mm <sup>2</sup>	1.2379	X153CrMoV12	AISI D2	60   197	0.003 - 0.005 .00012 - .00020
			1.2436	X210CrW12	AISI D4/D6		
			1.3343	H56-5-2C	AISI M2 / UNS T11302		
			1.3355	H518-0-1	AISI T1 / UNS T12001		
  	<b>M</b>	Stainless steel ferritic	1.4016	X6Cr17	AISI 430 / UNS S43000	60   197	0.004 - 0.006 .00016 - .00024
			1.4105	X6CrMoS17	AISI 430F		
		Stainless steel martensitic	1.4034	X46Cr13	AISI 420C	60   197	0.003 - 0.005 .00012 - .00020
			1.4112	X90CrMoV18	AISI 440B		
		Stainless steel martensitic - PH	1.4542	X5CrNiCuNb 16-4	AISI 630 / ASTM 17-4 PH	60   197	0.003 - 0.005 .00012 - .00020
			1.4545	X5CrNiCuNb 15-5	ASTM 15-5 PH		
		Stainless steel austenitic	1.4301	X5CrNi 18-10	AISI 304	60   197	0.003 - 0.005 .00012 - .00020
			1.4435	X2CrNiMo 18-14-3	AISI 316L		
1.4441	X2CrNiMo 18-15-3		AISI 316LM				
1.4539	X1NiCrMoCu 25-20-5	AISI 904L					
	<b>K</b>	Cast iron	0.6020	GG20	ASTM 30	60   197	0.002 - 0.004 .00008 - .00016
			0.6030	GG30	ASTM 40B		
			0.7040	GGG40	ASTM 60-40-18		
			0.7060	GGG60	ASTM 80-60-03		
	<b>N</b>	Aluminium alloy wrought	3.2315	AlMgSi1	ASTM 6351	60   197	0.005 - 0.007 .00020 - .00028
			3.4365	AlZnMgCu1.5	ASTM 7075		
		Aluminium alloy cast	3.2163	GD-AISI9Cu3	ASTM A380	60   197	0.005 - 0.007 .00020 - .00028
			3.2381	GD-AISI10Mg	UNS A03590		
		Copper	2.004	Cu-OF / CW008A	UNS C10100	60   197	0.005 - 0.007 .00020 - .00028
			2.0065	Cu-ETP / CW004A	UNS C11000		
		Brass lead free	2.0321	CuZn37 CW508L	UNS C27400	60   197	0.005 - 0.007 .00020 - .00028
			2.036	CuZn40 CW509L	UNS C28000		
		Brass, Bronze Rm < 400 N/mm <sup>2</sup>	2.0401	CuZn39Pb3 / CW614N	UNS C38500	60   197	0.005 - 0.007 .00020 - .00028
			2.102	CuSn6	UNS C51900		
		Bronze Rm < 600 N/mm <sup>2</sup>	2.0966	CuAl10Ni5Fe4	UNS C63000	60   197	0.005 - 0.007 .00020 - .00028
2.096	CuAl9Mn2		UNS C63200				
	<b>S<sub>1</sub></b>	Super alloys	2.4856		Inconel 625	60   197	0.002 - 0.003 .00008 - .00012
			2.4668		Inconel 718		
			2.4617	NiMo28	Hastelloy B-2		
			2.4665	NiCr22Fe18Mo	Hastelloy X		
	<b>S<sub>2</sub></b>	Titanium pure	3.7035	Gr.2	ASTM B348 / F67	60   197	0.003 - 0.005 .00012 - .00020
			3.7065	Gr.4	ASTM B348 / F68		
	<b>S<sub>3</sub></b>	Titanium alloys	3.7165	TiAl6V4	ASTM B348 / F136	60   197	0.003 - 0.005 .00012 - .00020
			9.9367	TiAl6Nb7	ASTM F1295		
	<b>S<sub>3</sub></b>	CrCo alloys	2.4964	CoCr20W15Ni	Haynes 25	60   197	0.002 - 0.003 .00008 - .00012
				CrCoMo28	ASTM F1537		
	<b>H<sub>1</sub></b> <b>H<sub>2</sub></b>	Hardened steel < 55 HRC	1.2510	100MnCrMoW4	AISI O1	60   197	0.003 - 0.005 .00012 - .00020
			1.2379	X153CrMoV12	AISI D2		

**V<sub>c</sub>** [m/min] | [SFM]  
**f<sub>z</sub>** [mm] | [IPT]

RECOMMENDATION FOR USE

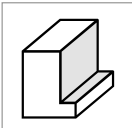
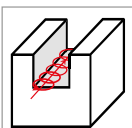
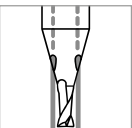
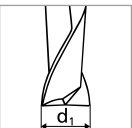
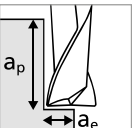
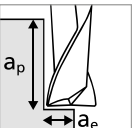
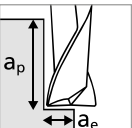
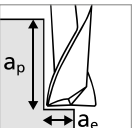
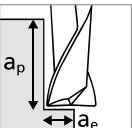
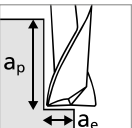
● Excellent | ● Good | ○ Acceptable | ⊗ Not recommended



Ød1 0.5–0.8 mm   .020"–.032"		Ød1 1.0–1.2 mm   .039"–.047"		Ød1 1.5–1.8 mm   .059"–.071"		Ød1 2.0–2.5 mm   .079"–.098"		Ød1 3.0 mm   .118"		Ød1 4.0–6.0 mm   .158"–.236"	
V <sub>c</sub>	f <sub>z</sub>	V <sub>c</sub>	f <sub>z</sub>	V <sub>c</sub>	f <sub>z</sub>	V <sub>c</sub>	f <sub>z</sub>	V <sub>c</sub>	f <sub>z</sub>	V <sub>c</sub>	f <sub>z</sub>
100   328	0.008 – 0.012 .00031 – .00047	140   459	0.013 – 0.015 .00051 – .00059	180   591	0.022 – 0.024 .00087 – .00094	200   656	0.030 – 0.032 .00118 – .00126	220   722	0.046 .00181	260   853	0.048 .00189
100   328	0.007 – 0.010 .00028 – .00039	140   459	0.012 – 0.014 .00047 – .00055	180   591	0.020 – 0.022 .00079 – .00087	200   656	0.028 – 0.030 .00110 – .00118	220   722	0.044 .00173	260   853	0.046 .00181
100   328	0.006 – 0.009 .00024 – .00035	140   459	0.009 – 0.011 .00035 – .00043	180   591	0.018 – 0.020 .00071 – .00079	200   656	0.026 – 0.028 .00102 – .00110	220   722	0.040 .00157	260   853	0.042 .00165
100   328	0.008 – 0.012 .00031 – .00047	140   459	0.014 – 0.016 .00055 – .00063	180   591	0.022 – 0.024 .00087 – .00094	200   656	0.030 – 0.032 .00118 – .00126	220   722	0.044 .00173	260   853	0.046 .00181
100   328	0.007 – 0.010 .00028 – .00039	140   459	0.013 – 0.015 .00051 – .00059	180   591	0.020 – 0.022 .00079 – .00087	200   656	0.028 – 0.030 .00110 – .00118	220   722	0.042 .00165	260   853	0.044 .00173
100   328	0.007 – 0.010 .00028 – .00039	140   459	0.013 – 0.015 .00051 – .00059	180   591	0.020 – 0.022 .00079 – .00087	200   656	0.028 – 0.030 .00110 – .00118	220   722	0.042 .00165	260   853	0.044 .00173
100   328	0.006 – 0.009 .00024 – .00035	140   459	0.010 – 0.012 .00039 – .00047	180   591	0.016 – 0.018 .00063 – .00071	200   656	0.026 – 0.028 .00102 – .00110	220   722	0.040 .00157	260   853	0.042 .00165
100   328	0.005 – 0.008 .00020 – .00031	120   394	0.010 – 0.020 .00039 – .00079	140   459	0.022 – 0.025 .00087 – .00098	160   525	0.026 – 0.035 .00102 – .00138	180   591	0.040 – 0.046 .00157 – .00181	200   656	0.050 – 0.054 .00197 – .00213
100   328	0.010 – 0.014 .00039 – .00055	140   459	0.015 – 0.017 .00059 – .00067	180   591	0.024 – 0.026 .00094 – .00102	200   656	0.032 – 0.034 .00126 – .00134	220   722	0.052 .00205	260   853	0.055 .00217
100   328	0.010 – 0.014 .00039 – .00055	140   459	0.015 – 0.017 .00059 – .00067	180   591	0.024 – 0.026 .00094 – .00102	200   656	0.032 – 0.034 .00126 – .00134	220   722	0.050 .00197	260   853	0.053 .00209
100   328	0.012 – 0.016 .00047 – .00063	140   459	0.018 – 0.020 .00071 – .00079	180   591	0.024 – 0.026 .00094 – .00102	200   656	0.032 – 0.034 .00126 – .00134	220   722	0.052 .00205	260   853	0.055 .00217
100   328	0.012 – 0.016 .00047 – .00063	140   459	0.018 – 0.020 .00071 – .00079	180   591	0.024 – 0.026 .00094 – .00102	200   656	0.032 – 0.034 .00126 – .00134	220   722	0.052 .00205	260   853	0.055 .00217
100   328	0.012 – 0.016 .00047 – .00063	140   459	0.018 – 0.020 .00071 – .00079	180   591	0.024 – 0.026 .00094 – .00102	200   656	0.032 – 0.034 .00126 – .00134	220   722	0.052 .00205	260   853	0.055 .00217
100   328	0.010 – 0.014 .00039 – .00055	140   459	0.016 – 0.018 .00063 – .00071	180   591	0.024 – 0.026 .00094 – .00102	200   656	0.032 – 0.034 .00126 – .00134	220   722	0.052 .00205	260   853	0.055 .00217
100   328	0.004 – 0.006 .00016 – .00024	120   394	0.007 – 0.008 .00028 – .00031	130   427	0.009 – 0.010 .00035 – .00039	140   459	0.010 – 0.012 .00039 – .00047	150   492	0.015 .00059	170   558	0.020 .00079
100   328	0.006 – 0.009 .00024 – .00035	120   394	0.014 – 0.016 .00055 – .00063	130   427	0.018 – 0.020 .00071 – .00079	140   459	0.026 – 0.028 .00102 – .00110	150   492	0.040 .00157	170   558	0.042 .00165
100   328	0.006 – 0.009 .00024 – .00035	120   394	0.014 – 0.016 .00055 – .00063	130   427	0.018 – 0.020 .00071 – .00079	140   459	0.026 – 0.028 .00102 – .00110	150   492	0.040 .00157	170   558	0.042 .00165
100   328	0.004 – 0.006 .00016 – .00024	140   459	0.007 – 0.008 .00028 – .00031	160   525	0.009 – 0.010 .00035 – .00039	180   591	0.010 – 0.012 .00039 – .00047	200   656	0.015 .00059	220   722	0.020 .00079
80   262	0.006 – 0.007 .00024 – .00028	100   328	0.008 – 0.010 .00031 – .00039	140   459	0.012 – 0.016 .00047 – .00063	180   591	0.018 – 0.024 .00071 – .00094	200   656	0.030 .00118	240   787	0.035 .00138

# CrazyMill Cool Square/Corner radius-Type A-1.5xd

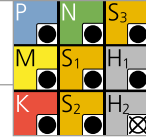
## MILLING WITH INTEGRATED COOLING | CUTTING DATA OVERVIEW

	Materials group	Material	Mat. no.	DIN	AISI/ASTM/UNS	Ød1	
						0.3-0.4 mm   .012" - .016"	
						$v_c$	$f_z$
<b>Side milling</b>  ■ $a_p = 1 \times d_1$ ■ $a_e = 0.3 \times d_1$	<b>P</b>	Unalloyed carbon steel Rm < 800 N/mm <sup>2</sup>	1.0301	C10	AISI 1010	60   197	0.005-0.007 .00020-.00028
			1.0401	C15	AISI 1015		
			1.1191	C45E/CK45	AISI 1045		
			1.0044	S275JR	AISI 1020		
			1.0715	11SMn30	AISI 1215		
		Low alloyed steel Rm > 900 N/mm <sup>2</sup>	1.5752	15NiCr13	ASTM 3415 / AISI 3310	60   197	0.004-0.006 .00016-.00024
			1.7131	16MnCr5	AISI 5115		
			1.3505	100Cr6	AISI 52100		
			1.7225	42CrMo4	AISI 4140		
		High alloyed tool steel Rm < 1200 N/mm <sup>2</sup>	1.2842	90MnCrV8	AISI O2	60   197	0.004-0.006 .00016-.00024
			1.2379	X153CrMoV12	AISI D2		
			1.2436	X210CrW12	AISI D4/D6		
1.3343	H56-5-2C		AISI M2 / UNS T11302				
		1.3355	H518-0-1	AISI T1 / UNS T12001			
<b>Trochoidal Slot Milling</b>  ■ $a_p = 1 \times d_1$ ■ $a_e = 0.1 \times d_1$	<b>M</b>	Stainless steel ferritic	1.4016	X6Cr17	AISI 430 / UNS S43000	60   197	0.005-0.007 .00020-.00028
			1.4105	X6CrMoS17	AISI 430F		
		Stainless steel martensitic	1.4034	X46Cr13	AISI 420C	60   197	0.004-0.006 .00016-.00024
			1.4112	X90CrMoV18	AISI 440B		
		Stainless steel martensitic - PH	1.4542	X5CrNiCuNb 16-4	AISI 630 / ASTM 17-4 PH	60   197	0.004-0.006 .00016-.00024
			1.4545	X5CrNiCuNb 15-5	ASTM 15-5 PH		
		Stainless steel austenitic	1.4301	X5CrNi 18-10	AISI 304	60   197	0.004-0.006 .00016-.00024
			1.4435	X2CrNiMo 18-14-3	AISI 316L		
1.4441	X2CrNiMo 18-15-3		AISI 316LM				
		1.4539	X1NiCrMoCu 25-20-5	AISI 904L			
	<b>K</b>	Cast iron	0.6020	GG20	ASTM 30	60   197	0.003-0.005 .00012-.00020
			0.6030	GG30	ASTM 40B		
			0.7040	GGG40	ASTM 60-40-18		
			0.7060	GGG60	ASTM 80-60-03		
 	<b>N</b>	Aluminium alloy wrought	3.2315	AlMgSi1	ASTM 6351	60   197	0.006-0.008 .00024-.00031
			3.4365	AlZnMgCu1.5	ASTM 7075		
		Aluminium alloy cast	3.2163	GD-AlSi9Cu3	ASTM A380	60   197	0.006-0.008 .00024-.00031
			3.2381	GD-AlSi10Mg	UNS A03590		
		Copper	2.004	Cu-OF / CW008A	UNS C10100	60   197	0.006-0.008 .00024-.00031
			2.0065	Cu-ETP / CW004A	UNS C11000		
		Brass lead free	2.0321	CuZn37 CW508L	UNS C27400	60   197	0.006-0.008 .00024-.00031
			2.036	CuZn40 CW509L	UNS C28000		
		Brass, Bronze Rm < 400 N/mm <sup>2</sup>	2.0401	CuZn39Pb3 / CW614N	UNS C38500	60   197	0.006-0.008 .00024-.00031
			2.102	CuSn6	UNS C51900		
Bronze Rm < 600 N/mm <sup>2</sup>	2.0966	CuAl10Ni5Fe4	UNS C63000	60   197	0.006-0.008 .00024-.00031		
	2.096	CuAl9Mn2	UNS C63200				
	<b>S<sub>1</sub></b>	Super alloys	2.4856		Inconel 625	60   197	0.003-0.004 .00012-.00016
			2.4668		Inconel 718		
			2.4617	NiMo28	Hastelloy B-2		
			2.4665	NiCr22Fe18Mo	Hastelloy X		
	<b>S<sub>2</sub></b>	Titanium pure	3.7035	Gr.2	ASTM B348 / F67	60   197	0.004-0.006 .00016-.00024
			3.7065	Gr.4	ASTM B348 / F68		
	<b>S<sub>2</sub></b>	Titanium alloys	3.7165	TiAl6V4	ASTM B348 / F136	60   197	0.004-0.006 .00016-.00024
			9.9367	TiAl6Nb7	ASTM F1295		
	<b>S<sub>3</sub></b>	CrCo alloys	2.4964	CoCr20W15Ni	Haynes 25	60   197	0.003-0.004 .00012-.00016
				CrCoMo28	ASTM F1537		
	<b>H<sub>1</sub></b> <b>H<sub>2</sub></b>	Hardened steel < 55 HRC	1.2510	100MnCrMoW4	AISI O1	60   197	0.004-0.006 .00016-.00024
			1.2379	X153CrMoV12	AISI D2		

**V<sub>c</sub>** [m/min] | [SFM]  
**f<sub>z</sub>** [mm] | [IPT]

RECOMMENDATION FOR USE

● Excellent | ● Good | ○ Acceptable | ⊗ Not recommended



Ød1 0.5–0.8 mm   .020"–.032"		Ød1 1.0–1.2 mm   .039"–.047"		Ød1 1.5–1.8 mm   .059"–.071"		Ød1 2.0–2.5 mm   .079"–.098"		Ød1 3.0 mm   .118"		Ød1 4.0–6.0 mm   .158"–.236"	
v <sub>c</sub>	f <sub>z</sub>	v <sub>c</sub>	f <sub>z</sub>	v <sub>c</sub>	f <sub>z</sub>	v <sub>c</sub>	f <sub>z</sub>	v <sub>c</sub>	f <sub>z</sub>	v <sub>c</sub>	f <sub>z</sub>
100   328	0.010 – 0.014 .00039 – .00055	140   459	0.015 – 0.017 .00059 – .00067	200   656	0.024 – 0.026 .00094 – .00102	220   722	0.034 – 0.036 .00134 – .00142	240   787	0.048 .00189	280   919	0.050 .00197
100   328	0.009 – 0.012 .00035 – .00047	140   459	0.014 – 0.016 .00055 – .00063	200   656	0.022 – 0.024 .00087 – .00094	220   722	0.032 – 0.034 .00126 – .00134	240   787	0.046 .00181	280   919	0.048 .00189
100   328	0.008 – 0.011 .00031 – .00043	140   459	0.011 – 0.013 .00043 – .00051	200   656	0.020 – 0.022 .00079 – .00087	220   722	0.030 – 0.032 .00118 – .00126	240   787	0.042 .00165	280   919	0.044 .00173
100   328	0.010 – 0.014 .00039 – .00055	140   459	0.016 – 0.018 .00063 – .00071	200   656	0.024 – 0.026 .00094 – .00102	220   722	0.034 – 0.036 .00134 – .00142	240   787	0.046 .00181	280   919	0.048 .00189
100   328	0.009 – 0.012 .00035 – .00047	140   459	0.015 – 0.017 .00059 – .00067	200   656	0.022 – 0.024 .00087 – .00094	220   722	0.032 – 0.034 .00126 – .00134	240   787	0.044 .00173	280   919	0.046 .00181
100   328	0.009 – 0.012 .00035 – .00047	140   459	0.015 – 0.017 .00059 – .00067	200   656	0.022 – 0.024 .00087 – .00094	220   722	0.032 – 0.034 .00126 – .00134	240   787	0.044 .00173	280   919	0.046 .00181
100   328	0.008 – 0.011 .00031 – .00043	140   459	0.012 – 0.014 .00047 – .00055	200   656	0.016 – 0.018 .00063 – .00071	220   722	0.030 – 0.032 .00118 – .00126	240   787	0.042 .00165	280   919	0.044 .00173
100   328	0.006 – 0.009 .00024 – .00035	120   394	0.011 – 0.022 .00043 – .00087	140   459	0.024 – 0.026 .00094 – .00102	160   525	0.028 – 0.036 .00110 – .00142	180   591	0.042 – 0.048 .00165 – .00189	200   656	0.052 – 0.057 .00205 – .00224
100   328	0.012 – 0.016 .00047 – .00063	140   459	0.018 – 0.020 .00071 – .00079	200   656	0.026 – 0.028 .00102 – .00110	220   722	0.036 – 0.040 .00142 – .00157	240   787	0.058 .00228	280   919	0.060 .00236
100   328	0.012 – 0.016 .00047 – .00063	140   459	0.018 – 0.020 .00071 – .00079	200   656	0.026 – 0.028 .00102 – .00110	220   722	0.036 – 0.040 .00142 – .00157	240   787	0.058 .00228	280   919	0.060 .00236
100   328	0.014 – 0.018 .00055 – .00071	140   459	0.020 – 0.022 .00079 – .00087	200   656	0.026 – 0.028 .00102 – .00110	220   722	0.036 – 0.040 .00142 – .00157	240   787	0.058 .00228	280   919	0.060 .00236
100   328	0.014 – 0.018 .00055 – .00071	140   459	0.020 – 0.022 .00079 – .00087	200   656	0.026 – 0.028 .00102 – .00110	220   722	0.036 – 0.040 .00142 – .00157	240   787	0.058 .00228	280   919	0.060 .00236
100   328	0.014 – 0.018 .00055 – .00071	140   459	0.020 – 0.022 .00079 – .00087	200   656	0.026 – 0.028 .00102 – .00110	220   722	0.036 – 0.040 .00142 – .00157	240   787	0.058 .00228	280   919	0.060 .00236
100   328	0.012 – 0.016 .00047 – .00063	140   459	0.018 – 0.020 .00071 – .00079	200   656	0.026 – 0.028 .00102 – .00110	220   722	0.036 – 0.040 .00142 – .00157	240   787	0.058 .00228	280   919	0.060 .00236
100   328	0.004 – 0.006 .00016 – .00024	120   394	0.007 – 0.008 .00028 – .00031	130   427	0.009 – 0.010 .00035 – .00039	140   459	0.010 – 0.012 .00039 – .00047	150   492	0.015 .00059	170   558	0.020 .00079
100   328	0.008 – 0.011 .00031 – .00043	120   394	0.016 – 0.018 .00063 – .00071	130   427	0.020 – 0.022 .00079 – .00087	140   459	0.028 – 0.030 .00110 – .00118	150   492	0.042 .00165	170   558	0.044 .00173
100   328	0.008 – 0.011 .00031 – .00043	120   394	0.016 – 0.018 .00063 – .00071	130   427	0.020 – 0.022 .00079 – .00087	140   459	0.028 – 0.030 .00110 – .00118	150   492	0.042 .00165	170   558	0.044 .00173
100   328	0.004 – 0.006 .00016 – .00024	140   459	0.007 – 0.008 .00028 – .00031	180   591	0.009 – 0.010 .00035 – .00039	200   656	0.010 – 0.012 .00039 – .00047	220   722	0.015 .00059	240   787	0.020 .00079
80   262	0.007 – 0.009 .00028 – .00035	100   328	0.010 – 0.012 .00039 – .00047	140   459	0.014 – 0.018 .00055 – .00071	180   591	0.020 – 0.026 .00079 – .00102	200   656	0.035 .00138	240   787	0.040 .00157